

FINKEL'SHTEYN, M.I., inzh.; ZHOLONDZ', I.A., inzh.

Anticorrosion protection of hydromechanical equipment with lacquer
paints. Elek.sta 32 no.4:28-33 Ap '61. (MIRA 14:7)
(Hydraulic machinery) (Corrosion and anticorrosives)

ZHOLONDZ', I.A.; FINKEL'SHTEYN, M.I.

Protective coatings preventing paraffin deposition on the internal surfaces of petroleum pipes. Lakokras.mat. i ikh.prim. no.4:40-44 '62. (MIRA 16:11)

1. Leningradskoye otdeleniye Gosudarstvennoy vsesoyuznoy proizvodstvennoy kontory po lakokrasochnym pokrytiyam Glavkhimplastkrasi Ministerstva khimicheskoy promyshlennosti SSSR.

GRIGOR'YEV, G.P., kand.tekhn.nauk; VAYDMAN, R.I., starshiy inzhener;
BLOSHTEYN, I.I., starshiy inzhener; ZHOLONDZ', I.A., starshiy
inzhener; TURUNINA, Ye.I., starshiy inzhener

Development of formulas for the lining of the towers for chlorine
dioxide bleaching of pulp. Report No.1: Impermeable lacquer-
base coating. Trudy LTITSEP no.11:83-87 '62. (MIRA 16,10)

AGRANAT, B.L.; ZHOLONDZ', I.A.; KOFMAN, N.I.

Use of new corrosion-preventing coatings resistant to chemicals and
water. Lakokras.mat.i ikh prim. no.3:49-51 '60. (MIRA 14:4)
(Protective coatings)

5.5210

77748

SOV/75-15-1-10/29

AUTHORS: Busev, A. I., Zholondkovskaya, T. N., Kuznetsova, Z. M.

TITLE: Separation of Gallium and Indium by the Diethyldithiocarbamate Method

PERIODICAL: Zhurnal analiticheskoy khimii, 1960, Vol 15, Nr 1, pp 50-56 (USSR)

ABSTRACT: Conditions of Ga and In separation by precipitating In with sodium diethyldithiocarbamate or extracting it with ethyl acetate were studied. A review of the literature dealing with the determination and separation of Ga and In is also given. The following solutions were used: standard gallium nitrate solution (1 mg Ga/ml); standard indium nitrate solution (2.5 mg In/ml); 2% aqueous sodium diethyldithiocarbamate solution; and the following buffer solutions:

0.2M CH ₃ COOH + 0.2M CH ₃ COONa,	pH 3.72-5.57,
0.2M KCl + 0.2M HCl,	pH 1.00-2.20,
0.2M H ₃ BO ₃ + 0.05M Na ₂ B ₄ O ₇ ,	pH 7.09-9.11.

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Separation of Gallium and Indium by the Diethyl-
dithiocarbamate Method

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The data obtained show that quantitative precipitation of gallium with sodium diethyldithiocarbamate takes place at pH 2.7-5.0, but has no practical value since precipitation of many other elements also takes place under the same conditions. Precipitation of indium with sodium diethyldithiocarbamate is more selective;

tartrates, oxalates, and sulfosalicylic acid do not interfere. It was found that indium diethyldithiocarbamate can be quantitatively extracted with ethyl acetate at pH 3-5 in an excess of sodium oxalate. It is proposed to separate Ga and In by precipitating indium with sodium diethyldithiocarbamate or extracting it with ethyl acetate at pH 3-5 in an excess of sodium oxalate. Experimental error for In and Ga is 1-3% at a In/Ga ratio from 2:1 to 1:10. The results of Ga and In separation by precipitation are shown in Table 10.

Separation of In and Ga by extraction is illustrated by data shown in Table 11. There are 11 tables; and 35 references, 8 U.S., 3 U.S., 3 U.K., 14 German, 1 Japanese,

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Separation of Gallium and Indium by the Diethyl-
dithiocarbamate Method

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SOV/75-15-1-10/29

Table 10. Precipitation of In with sodium diethyldithiocarbamate in the presence of gallium (at pH 3-4) in excess of sodium oxalate: (a) taken (mg); (b) ratio In: Ga; (c) In found (mg); (d) error of In determination; (e) absolute (mg); (f) relative (%); (g) Ga found (mg); (h) error of Ga determination; (i) absolute (mg); (j) relative (%).

a		b	c	d		g	h	
In	Ga			e	f		i	j
2,39	19,68	1:8	2,44	+0,05	+2,1	19,89	-0,21	+1,06
2,39	19,68	1:8	2,46	+0,07	+2,9	19,82	-0,14	+0,7
2,99	4,92	1:2	2,97	-0,02	-0,7	4,96	+0,04	+0,8
5,98	4,92	1:1	5,79	-0,19	-3,1	4,94	+0,02	+0,4
5,98	4,92	1:1	5,95	-0,02	-0,3	4,96	+0,04	+0,8
5,98	4,92	1:1	6,03	+0,05	+0,8	4,79	-0,13	-2,6
5,98	4,92	1:1	6,04	+0,06	+1,0	4,93	+0,01	+0,2
5,98	2,46	2:1	6,01	+0,03	+0,5	2,30	-0,16	-3,3
5,98	2,46	2:1	5,90	-0,08	-1,3	2,50	+0,04	+0,8

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Separation of Gallium and Indium by the Diethyl-
dithiocarbamate Method

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Table 11. Separation of In and Ga by extracting indium diethyldithiocarbamate with ethyl acetate in an excess of sodium oxalate (pH 3-5) (a) taken (mg), (b) ratio In: Ga, (c) found In (mg), (d) error of In determination, (e) absolute (mg), (f) relative (%), (g) found Ga (mg), (h) error of Ga determination, (i) absolute (mg), (j) relative (%)

a		b	c	d		g	h	
In	Ga			e	f		i	j
4,74	5,78	1 : 1	4,74	—	—	5,83	+0,02	+0,3
2,84	5,78	1 : 2	2,85	+0,01	+0,4	5,83	+0,02	+0,3
2,94	15,02	1 : 5	3,00	+0,06	+2,0	14,93	-0,08	-0,4
2,94	30,04	1 : 10	2,96	+0,02	+0,7	29,97	-0,07	-0,2

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Separation of Gallium and Indium by the Diethyl- 77748
dithiocarbamate Method

SOV/75-15-1-10/29

1 French, 1 Czechoslovak, 7 Soviet. The 5 most recent U.S. and U.K. references are: Irving, H. M., Rossoti, F. G. C., Analyst 77, 801 (1952); Kraus, K. A., Nelson, F., Smith, G. W., J. Phys. Chem. 58, N 1, 11 (1954); Arden, T. W., Burstall, F. H., Davies, G. R., Lewis, J. A., Linstead, P. G., Nature 162, 691 (1948); Carvalho, R. G. de, Lederer, M., Analyt. chim. acta 15, Nr 6, 543 (1956).

ASSOCIATION: M. V. Lomonosov Moscow State University (Moskovskiy gosudarstvennyy universitet imeni M. V. Lomonosova)

SUBMITTED: November 11, 1958

Card 5/5

AUTHORS: Gibovskaya, L.N., Zholtko, Ye.A., Krasnoyarsk SOV-26-58-9-41/42
TITLE: Early Snowfall (Ranniy snegopad)
PERIODICAL: Priroda, 1958, Nr 9, p 126 (USSR)
ABSTRACT: A case of an early snowfall during the night of 25/26 Sep 1955 in Krasnoyarsk is described. There is 1 photo.
1. Snow---USSR

Card 1/1

ZHOITOK, A.G.; ZABOLOTSKIY, F.D.

Masters of highly productive labor N.N.Pavlov and M.F.Plotnikov.
Avt. dor. 18 no.3:11-13 My-Je '55. (MLRA 8:9)
(Earthwork)

ZABOLOTSKIY, F.D., inzhener; ZHOLTOK, A.G., inzhener.

Over-all preparation of roads for springtime. Avt.dor. 20 no.3:12-13
Mr '57. (MLRA 10:5)

(Roads--Maintenance and repair)

ZABOLOTSKIY, Fedor Danilovich; ZHOLTOV, Adol'f Georgiyevich; VEYTSMAN, M.I.,
redaktor; MAL'KOVA, N.V., tekhnicheskiiy redaktor

[Leading road graders; practices of the innovators M.F.Plotnikov
and M.I.Matusevich] Peredovye avtogreideristy; iz opyta raboty
novatorov M.F.Plotnikova i M.I.Matusevicha. Moskva, Nauchno-tekhn.
izd-vo avtotransp.lit-ry, 1957. 33 p. (MIRA 10:8)
(Road machinery)

ZHOLTOK, A.G., inzh.

Automation of asphalt concrete plants in Latvia. Avt. dor. 24
no.10:6-8 O '61. (MIRA 14:11)
(Latvia--Asphalt concrete)

ZHOLTOK, A.G., inzh.

Simple layout for automating an asphalt-concrete plant. Avt.
dor. 26 no. 4:23-24 Ap '63. (MIRA 16:4)
(Asphalt concrete) (Automatic control)

ZHOLTOVSKIY, I.V. [Zholtovs'kyi, I.V.]

In 1918. Znan. ta pratsia no. 4:12 Ap '61.
(Lenin, Vladimir Il'ich, 1870-1924)
(Moscow--Civic improvement)

(MIRA 14:5)

ZHOLTOVSKIY, I. V.

Brick dwellings for villages; designs and plans. Moskva, Gos. izd-vo arkhitektury i gradostroitel'stva, 1950. 105p. (52-44707)

NA7367.Z5

1. Architecture, Domestic - Designs and plans. 2. Architecture, Domestic - Russia.

FASHUK, Andrey Iosifovich; DERKACH, Ivan Stepanovich. Prinimal uchastiye
ZHOLTOVSKIY, P. [Zholtovs'kyi, P.]. GAI'ON, Yu. [Hapon, IU.],
tekhn.red.

[Lvov; guidebook] L'viv; putivnyk. L'viv, Knyzhkovo-zhurnal'ne
vyd-vo, 1959. 147 p. (MIRA 13:4)
(Lvov--Guidebooks)

ZHOLTOVSKIY, P. N.

"Drevniye motivy v gutsul'skoy ornamentike."

report submitted for 7th Intl Cong, Anthropological & Ethnological Sciences,
Moscow, 3-10 Aug 64.

ZHOLUBMETOV, K. I.

ZHOLUBMETOV, K. I.- "Measures to Eliminate Spelling Mistakes in the Native Language in the V-VI Classes of Kazakh Schools," Acad Pedagogical Sci RSFSR, Inst of Methods of Teaching, Moscow, 1955 (Dissertations for the Degree of Candidate of Pedagogical Sciences)

SO: Knizhnaya Letopis' No. 26, June 1955, Moscow

ZHOLUDEV, A.

~~Mechanical~~ Mechanical device for inspection of venturi wings in K-80 and
K-81 carburetors. Avt. transp. 34 no.10:33 0 '56. (MLRA 9:12)

(Automobiles--Engines--Carburetors)

ZHOLUDEV, A.

Reconditioning the valve seat of the B-6 gas pump. Avt.transp.
34 no.9:33 S '56. (MLRA 9:11)
(Fuel pumps)

ZHOLUDEV, I. (g.Ivanovo)

Progressive repair and construction trust. Zhil.-kom. khoz. 11
no.2:17, 20-21 F '61. (MIRA 14:5)
(Ivanovo--Municipal services)

ZHOLUDEV, I. (Saratov)

Scientists help to organize urban gas supply systems.
Zhil.-kom.khoz. 10 no.4:11-13 '60. (MIRA 13:6)
(Saratov--Gas distribution)

ZHOLUDEV, I.

Modern hotel in Ryazan. Zhil.-kom. khoz. 10 no.7:25-26 '60. (MIRA 13:10)
(Ryazan--Hotels, taverns, etc.)

ZHOLUDEN, I.S.

ZHOLUDEN, I.S.

"Space Symmetry and Ferroelectric Phase Transitions"

a report presented at Symposium of the International Union of
Crystallography Leningrad, 21-27 May 1959

ZHOLUDEV, I. S.

"Symmetry of Tensors of Second Order and some Problems of
the Point Symmetry of Physical Objects"

a report presented at Symposium of the International Union of
Crystallography Leningrad, 21-27 May 1959

Subject : USSR/Aeronautics - training AID P - 4617
Card 1/1 Pub. 135 - 6/23
Author : Zholudev, L. V., Hero of the Soviet Union, Guards Col.,
Pilot Class I
Title : Flight of a flight of bombers at night
Periodical : Vest. vozd. flota, 4, 30-33, Ap 1956
Abstract : The author makes some suggestions how to train the
flying personnel in formation flying at night. The made
suggestions are based on the experience gained in flying
the Il-28 type bombers. The article is of informative
value.
Institution : None
Submitted : No date

ZHOLUDEY, M.D., STENDER, V.V.

Overvoltage in the liberation of hydrogen from alkaline solutions.
Zhur. prikl. khim. v. 31 no.5:719-723 My '58. (MIRA 11:6)

1. Dnepropetrovskiy khimiko-tehnologicheskii institut.
(Hydrogen) (Overvoltage)

ZHOLUDEV, M.D., kand. tekhn. nauk; KISILEVICH, V.O., inzh.; BAKALYUK, Ya.Kh.,
inzh.; Prinimala uchastiye OKHRAMOVICH, L.H., inzh.

Production of thin-walled pipe made by galvanoplasty. Proizv.
trub no.10:101-105 '63.

(MIRA 17:10)

KISILEVICH, V.O., inzh.; ZHOLUDEV, M.D., kand.tekhn.nauk

Unit for electrodeposition of metals on metals on internal surfaces of hollow cylindrical bodies. Mashinostroenie no.6:64
N.B '62. (MIRA 16:2)

1. Ukrainskiy nauchno-issledovatel'skiy trubnyy institut, g. Dnepropetrovsk.

(Electroplating)

ACCESSION NR: AP4022110

S/0073/64/030/003/0287/0289

AUTHOR: Pilipenko, N. L.; Zholudev, M. D.

TITLE: Chromium plating of articles made from "Nimonec".

SOURCE: Ukrainskiy khimicheskiy zhurnal, v. 30, no. 3, 1964, 287-289

TOPIC TAGS: chromium plating, Nimonec, nickel alloy, continuous plating, chemical pickling, potassium fluosilicate, plating bath, stainless steel, tungsten containing alloy

ABSTRACT: It was established that chromium plating of pipes and rods of "Nimonec" tungsten-containing alloys cannot be effected with the present plating systems. A method was worked out for continuously depositing strongly adherent chromium deposits 50-60 microns thick by combining chemical pickling and chromium plating in a self-regulating electrolyte (Fig. 1). The chromium plating conditions are presented. The plating bath in g/l consisted of chromic anhydride 250, strontium sulfate 5.5-6.5, and potassium fluosilicate 18-20

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ACCESSION NR: AP4022110

and was maintained at a temperature of 60-65C. The rate of drawing the rod through the bath to permit optimum 2-3 minute pickling time was 8 mm/min, and the rate of rotating rod was 100 rev./min. The cathode current density was 60 amp/dm². Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 09Apr64

ENCL: 01

SUB CODE: ML

NO REF SOV: 003

OTHER: 003

Card 2/82

PILIPENKO, N.L.; ZHOLIDEV, M.D.

Chromium plated articles made of 'nimonic' type of alloys.
Ukr. khim. zhur. 30 no.3:287-289 '64. (MIRA 17:10)

PROSKURKIN, Ye.V., inzh.; ZHOLUDEV, M.D., inzh.

Nickel plating of molybdenum and its alloys. Mashinostroenie
no.6:60 N-D '63. (MIRA 16:12)

GORBUNOV, N.S.; ZHOLUDEV, M.D.; PROSKURKIN, Ye.V.

Zinc diffusion coatings. Zashch. met. 1 no.3:314-318 My-Je '65.
(MIRA 18:8)

1. Institut fizicheskoy khimii AN SSSR i Ukrainskiy nauchno-
issledovatel'skiy trubnyy institut.

ZHOLUDEV, M.D. Cand Tech Sci -- (diss) "^(sodium zincate)Electrolysis of solutions,"
~~of zincate of sodium~~ Dnepropetrovsk, 1957. 17 pp. (Min of Higher
Education UkSSR. Dnepropetrovsk Chemico-Technological Inst im
F.E. Dzerzhinskiy. Chair of Technology of Electrochemical Products.)
130 copies.
(KL, 8-58, 105)

ZHOLUDEV, M.D.; STENDER, V.V.

Cathodic polarization during electrolysis of zincate solutions. Ukr.
khim.zhur. 24 no.5:570-574 ' 58. (MIRA 12:1)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut.
(Zincates) (Polarization (Electricity))

ZHOLUDEV, M.D.

ZHOLUDEV, M.D.; STENDER, V.V.

Potentials of hydrogen separation from alkali solutions at increased current densities. Ukr. khim. zhur. 23 no.3:322-324 '57. (MLRA 10:9)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut.
(Electrolysis) (Hydrogen)

SOV/137-58-7-14617 D

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 7, p 96 (USSR)

AUTHOR: ~~Zholudev, M.D.~~

TITLE: Electrolysis of Sodium Zincate Solutions (Elektroliz rastvorov tsinkata natriya)

ABSTRACT: Bibliographic entry on the author's dissertation for the degree of Candidate of Technical Sciences, presented to the Dnepropetr. khim.-tekhrol. in-t (Dnepropetrovsk Institute of Chemical Technology), Dnepropetrovsk, 1957

ASSOCIATION: Dnepropetr. khim.-tekhrol. in-t (Dnepropetrovsk Institute of Chemical Technology), Dnepropetrovsk

1. Sodium-zinc solutions--Electrolysis

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5(4)

SOV/153-58-6-13/22

AUTHORS: Kisilevich, V. O., Zholudev, M. D.

TITLE: On the Measuring of Electrode Polarization (Ob izmerenii elektrodnoy polyarizatsii)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 6, pp 79-83 (USSR)

ABSTRACT: The irreproducible results on electrode polarization (Refs 1, 2) are conditioned by several factors. Various suggestions have been made for their elimination (Refs 2-5). However, scientific publications do not contain any well-founded experimental data concerning the economical choice of electrode size, shape etc. The paper under consideration serves the purpose of establishing experimentally the electrode shape to be chosen, the angle at which the tip of the electrolytic key should be fixed with regard to the electrode, and finally the maximum current densities permissible at which reproducible results on polarization measuring at this or that position of said tip can still be obtained. In the experimental part, table 1 gives the characteristics of the cathodes used (of

Card 1/3 nickeled iron; rectangular, triangular, cylindrical, spherical,

On the Measuring of Electrode Polarization

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and discoid). Figure 1 shows the design of a screening frame for the discoid cathode. Figure 2 illustrates the position of the tip of the electrolytic key. From figure 3 it can be seen that the extension from 0.1 to 1.7 mm of the capillary diameter (Fig 2, position 1) results in a potential-increase with rising current density (Curves 3 and 1). Figures 4, 5 and 7 show the cathode potentials with individual electrode types. Figure 6 shows a turnable plate for electrode, which turned out to be inapplicable to the purpose. A rotating disc must be used, the potentials of which are identical at different points. For their experiments the authors used the electrolytic precipitation of nickel from sulfates, of zinc from zincates, and of hydrogen from 6N NaOH. The most easily reproducible results are obtained on the measuring of potentials at all points of the cathode, with a sphere and a small disc enclosed in a vinyl-plast frame so as to eliminate an uneven current distribution. The tip of the electrolytic key must be directed towards the electrode from below, at an angle of 60-65°. There are 7 figures, 1 table, and 10 references, 6 of which are Soviet.

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On the Measuring of Electrode Polarization

SOV/153-58-6-13/22

ASSOCIATION: Kafedra tekhnologii elektrokhimicheskikh proizvodstv;
Dnepropetrovskiy khimiko-tekhnologicheskii institut
(Chair of Technology of the Electrochemical Plants;
Dnepropetrovsk Chemo-technological Institute)

SUBMITTED: November 29, 1957

Card 3/3

KORNIYENKO, V.G.; ZHOLUDEV, M.D., kand.tekhn.nauk

Introducing electrolytic zinc plating of carbon-steel strips. Biul.
tekhn. inform. Gos. nauch.-issl. inst. nauch. i tekhn. inform. 17
no. 7: 9-11 J1 '64.

(MIRA 17:10)

ZHOLUDOV, M.D.; STENDER, V.V.

Properties of sodium zincate solutions; viscosity, density, and
coefficients of diffusion. Ukr. khim. zhur. 23 no.2:200-207 '57.
(MLRA 10:6)

1. Dnepropetrovskiy khimiko-tehnologicheskii institut.
(Sodium zincate) (Solution (Chemistry))

Zholudev, M. D.

73-3-6/24

AUTHOR: Zholudev, M. D. and Stender, V. V.

TITLE: Potentials of Hydrogen Evolution from Alkalies with Increased Current Density. (Potentsialy Vydeleniya Vodoroda iz Rastvorov Shchelochey Pri Povyshennykh Plotnostyakh Toka)

PERIODICAL: Ukrainskiy Khimicheskii Zhurnal, 1957, Vol. 23., No. 3, pp. 322-324 (USSR).

ABSTRACT: The potentials of hydrogen evolution of 9 metals (Mg, Zn, Pb, Sn, Cd, Cr, Sb, Cu and Al) were measured by the direct compensation method at $25^{\circ}\text{C} \pm 0.2^{\circ}\text{C}$ at a current density interval of 10^{-5} to $4 \cdot 10^{-1}$ a/cm². These data are required for the calculation of the intensity in the bath, for the investigation of conditions of the discharge of metal ions together with the H-ions, etc. when calculating the electrolysis of alkaline solutions. 6 N and 0.6 N NaOH solutions (chemically pure) were used as electrolytes. All metals were used in the shape of discs as cathodes which were previously polarised in the investigated solution for 1 hour at a current density of 400 a/m². Measurements were carried out in an open vessel, the electrodes being at a distance of 60 mm. Results are tabulated in Table 1.

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73-3-6/24

Potentials of Hydrogen Evolution from Alkalies with Increased Current Density.

Table 2 gives comparative data for iron, nickel and cobalt obtained by the authors in analogous experiments and data for the metals which have previously been published in literature. Discrepancies were of the order 0.01 - 0.05 V. Lead differs from other metals even during a comparatively short polarisation period as the surface turns porous and the overvoltage decreases due to the increase of the surface. The disintegration of the surface is obviously connected with a discharge of Na-ions. Aluminium disintegrates during cathodic polarisation, up to 600 a/m² current density, at higher current density cathodic protection takes place. There are 2 tables and 6 Slavic references.

SUBMITTED: November, 29, 1956.

ASSOCIATION; Dnepropetrovsk Chemical-Technology Institute.
(Dnepropetrovskiy Khimiko-Tekhnologicheskii Institut)

AVAILABLE: Library of Congress.

Card 2/2

ZHOLUDEV, M.D.

AUTHORS: Zholudev M.D. and Stender V.V.

73-2-3/22

TITLE: Properties of sodium zincate solutions: coefficients of diffusion, viscosity and density. (Svoystva rastverov tsinkata natriya: koeffitsiyenty diffuzii, vyazkost' i plotnost').

PERIODICAL: "Ukrainskiy Khimicheskiy Zhurnal" (Ukrainian Journal of Chemistry), Vol.23, No.2, March-April, 1957, pp.200-207 (USSR).

ABSTRACT: Various methods have been described in literature for the determination of the above coefficients. The optical method devised by K.V.Chmutov and I.Ya.Slonim (Ref.6: K.V.Chmutov and I.Ya.Slonim, Usp.Khim., 1950, 22, 142), the diffraction method described by Ya.P.Gokhshtein (Ref.7: Ya.P.Gokhshtein, Zh.Fiz.Khim., 1948, Vol.22, 371 and 1952, Vol.26, 224, 336) and other methods are critically examined. The authors determined the coefficients of diffusion on a rotating disc electrode which had porous diaphragms with straight channels. They used an equation expressing the limit current on the rotating disc electrode and discuss the particular case of electroplating of metals. The apparatus for this purpose is described in detail and illustrated in Fig.1. The dependence of the electrode

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73-2-9/22

Properties of sodium zincate solutions: coefficients of diffusion, viscosity and density. (Cont.)

potential of 0.05 mol. sodium zincate and the log of the current density at various speeds of rotation of the electrode is given in Diagram 2. The diffusion coefficients of zincate ions calculated by the above mentioned formula are tabulated (Table 1). The obtained experimental values for the diffusion coefficients for various concentrations of zinc and free alkali in the solution are indicated in Diagrams 4 and 5. It can be seen (Diagram 5) that the coefficients decrease with increasing alkali concentration. This is demonstrated by the increasing viscosity. During the electrolysis of zincate containing 30 g/l zinc and free alkali (in one case 120 g/l, in the second case 480 g/l) the limit current should decrease in the same proportion as the diffusion coefficient, i.e. 4.8 fold. This was proved by carrying out practical experiments. The viscosity of the solution was determined with an Ostwald viscosimeter and values obtained are shown in Diagrams 6 and 7. The density of the sodium zincate solution is determined in relation to the density

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73-2-9/22

Properties of sodium zincate solutions: coefficients of diffusion, viscosity and density. (Cont.) of water. (Diagrams 8 and 9).

There are 2 drawings, 7 diagrams, 1 table, and 16 references, 12 of which are Slavic.

ASSOCIATION: Dnepropetrovsk Chemical Technology Institute.
(Dnepropetrovskiy Khimiko-tekhnologicheskii Institut).

SUBMITTED: September 15, 1956.

AVAILABLE: Library of Congress

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ACCESSION NR: AR4041594

S/0137/64/000/005/D038/D039

SOURCE: Ref. zh. Metallurgiya, Abs. 5D226

AUTHOR: Zholudev, M. D.; Kisilevich, V. O.; Bakalyuk, Ya. Kh.

TITLE: Production of thin-walled pipes of galvanoplastics

CITED SOURCE: Sb. Proiz-vo trub. Vy* p. 10. M., Metallurgizdat, 1963, 101-105

TOPIC TAGS: thin walled pipe, galvanoplastic, pipe production

TRANSLATION: Possibility was studied of obtaining (by method of galvanoplastics) special thin-walled pipes (with thickness of wall < 0.1 mm) from Cu, Ni, and also alloy of type 18-8. Two variants of constructions of installations for galvanoplastic manufacture of pipes were tested. On first variant it was proposed to increase metal on mandrel of finite length, and then for equal intervals of time to pull pipe from mandrel for several centimeters and on liberated part of it again to

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ACCESSION NR: AR4041594

increase metal. It was suggested to remove wave-like thickening in places of joining of pipe by hot drawing. Such a variant, tested on Cu pipes, did not give positive result. On section of joining there occurred break of pipe. All subsequent experiments were conducted on installation which consisted of passage bath, mandrel, and drive for rotation of pipe. Mandrel was passed through rubber packings and was braced in bushing of drive. Grinding of deposit in process of electrodeposition was done with help of granite or textolite bars. Different metals and alloys (Ti, stainless steel 1Kh18N9T and others) were tested as material for mandrels. The best in quality were pipes obtained on mandrels of stainless steel. On installation were obtained Cu pipes with diameter of 10 - 20 mm 250 mm in length with minimum thickness of wall of 10 μ . Results of investigation of quality of obtained pipes are such: pipes with thickness of wall below 25 μ have significant porosity, and with thickness of wall of 25 μ and above are nonporous and sustain hydraulic tests with water pressure of 1 atmosphere. In preliminary experiments nonporous Ni pipes couldn't be obtained. Influence on porosity of Ni pipes of such factors as cleanness of treatment of mandrels, conditions of electrolysis (density of current, temperature of electrolyte, speed of rotation of mandrels), and thickness of deposit were investigated. In experi-

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ACCESSION NR: AR4041594

ments conducted for the purpose of establishment of the possibility of obtaining special thin-walled pipes of alloy of type 18-8, in all tested electrolytes we could not make the layer of precipitated alloy greater than 6μ . All obtained deposits were stressed with small yield on current. Only with use of electrolyte of composition 290 g/l of $\text{Cr}_2 \cdot (\text{SO}_4)_3 \cdot 18\text{H}_2\text{O}$, 39 g/l $(\text{NH}_4)_2\text{SO}_4 \cdot \text{FeSO}_4 \cdot 6\text{H}_2\text{O}$, 70 g/l $\text{NiSO}_4 \cdot 7\text{H}_2\text{O}$, 100 g/l $\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$ and 50 g/l of Na citrate trisubstituted at acidity 1.6, the thickness of metal precipitated on mandrel exceeded 10μ . Deposits with this thickness were nonporous, little stressed, but with thickness of 15μ their internal stresses sharply increased and they spontaneously cracked. Bibliography: 16 references.

SUB CODE: MM, IE

ENCL: 00

Card 3/3

ZHOLUDEV, M.D.; STENDER, V.V.

Effect of impurities and admixtures on electrolysis of sodium
zincate solutions. Zhur. prikl. khim. 31 no.7:1036-1039
Jl '58. (MIRA 11:9)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut.
(Electrolysis) (Sodium zincates)

ZHOLUDEV, N.S., mashinist elektrovoza

Strengthen the cause of peace. Sov.profsoiuzy 7 no.24:2
D '59. (MIRA 12:12)

1. Vostochno-Sibirskaya sheleznaya doroga.
(Russia--Foreign relations)

PALILOVA, A.N.; ZHOLUDEVA, V.P.

Behavior of corn forms with cytoplasmatically sterile pollen
in free transpollination; preliminary report. Biul. Inst. biol.
AN BSSR no.6:218-222 '61. (MIRA 15:3)
(CORN BREEDING)

L 31226-66 EWT(d)/EWT(l)/EWT(m)/EWP(w)/ETC(f)/EWP(v)/EWP(k) IJP(c) WW/EM

ACC NR: AP6022809

SOURCE CODE: UR/0096/66/000/003/0089/0090

AUTHOR: Zholudov, Ya. S. (Engineer)

ORG: Podolye Machine Building Plant im. S. Ordzhonikidze (Podol'skiy mashinostroitel'nyy zavod)

TITLE: Problem of heat flow in the wall of a finned jacket tube

SOURCE: Teploenergetika, no. 3, 1966, 89-90

TOPIC TAGS: heat transfer, thermodynamics

ABSTRACT: Earlier attempts to evaluate the heat flow from the fins on a finned jacket tube to the cylindrical tube wall have shown that the assumption that the heat transfer area from fin to wall can be considered equal to the area of contact of fin and wall only in the first approximation. On the basis of an analysis of the influence of geometric and thermo-physical factors on the heat dissipation coefficient from fin to wall, formulas are developed which allow a generalization of the values of dissipation coefficient over a wide range of parameters. Orig. art. has: 6 figures. [JPRS]

SUB CODE: 20 / SUBM DATE: none

Card 1/1 BLG

UDC: 621.18.536.24.001.5

8915

6788

ZHOLUDOV, Ya.S., inzh.; PLOTKIN, Ye.R., kand. tekhn. nauk

Study of the temperature conditions of a finned pipe. Teploenergetika
12 no.6:35-39 Je '65. (MIRA 18:9)

1. Z10 i Vsesoyuznyy nauchno-issledovatel'skiy teplotekhnicheskii
institut.

LIPETS, A.U., inzh.; ZHOLUDOV, Ya.S., inzh.; LOKSHIN, V.A., kand. tekhn.
nauk; ANTONOV, A.Ya.

Use of pipes with internal longitudinal fins in an intermediate
superheater. Teploenergetika 12 no.8:23-27 Ag '65.
(MIRA 18:9)

SPIVAK, G. V., IGRAS, E. and ZHOLUDYEV, V. S.

Electron Laboratory of Lomonosov University, Moscow.

x

"Electron Optical Observation and Electron Microscopy of E Ferro-Electrical Domain Structures."

report presented at 4th. Intl. Conference on Electron Microscopy, Berlin GFR,
10 - 17 ~~19~~ Sep 1958.

L 13125-66 ENT(1)/ENT(m)/T/EMP(t)/EMP(b)/ENA(c) IIP(c) JD/JG/GG
 ACC NR. AP5028923 (N) SOURCE CODE: UR/0135/65/010/011/1222/1226
 AUTHORS: Aleksyeyenko, L. I. (Aleksyenko, L. I.); Zhonnir, S. V.;
Chedzhemova, I. L.; Nosenko, A. Ye.; Lymarenko, L. M. (Limarenko,
L. M.); Pashkovskyy, M. V. (Pashkovskiy, M. V.)
 ORG: L'viv State University im. I. Franko (L'vivskyy derzhuniversytet)
 TITLE: Growth of zinc tungstate crystals and investigation of their
optical properties
 SOURCE: Ukrayinskyy fizychnyy zhurnal, v. 10, no. 11, 1965, 1222-1226
 TOPIC TAGS: optic spectrum, light absorption, luminescence spectrum,
uv spectrum, ir spectrum, zinc compound optic material, single crystal
 ABSTRACT: Zinc tungstate single crystals were grown from the melt by
 the Czochralski method. The crystals were grown in air in platinum
crucibles using high-frequency heating. To provide the necessary tem-
perature for crystal growth and further annealing above the platinum
crucible a furnace with a nichrome heater was set up, making it possible
to maintain a temperature of about 1000C. All crystals were annealed
and cooled at room temperature, at which all investigations were made.
The conditions were studied for obtaining crystals with chromium acti-
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L 13125-66

ACC NR: AP5028923

vator concentrations up to 2 at.% by adding Cr_2O_3 and CrCl_3 . The penetration of the activator and the stoichiometry of the crystals were controlled by chemical analysis. The mosaicity angle increases on increasing the activator concentration from $8'$ up to $10'16'$ at a concentration of 2 at.%. Optical absorption spectra were obtained in the ultraviolet, visible, and near infrared. Luminescence spectra were obtained in the visible. Orig. art. has: 3 figures.

SUB CODE: 20/ SUBM DATE: 21Dec64/ NR REF SOV: 001/ OTH REF: 007

Card

2/2 HW

ZHOMOV, A. K.: Master Tech Sci (diss) -- "The gasification of oil residues in the presence of water vapor in order to obtain power-producing and olefin-containing gases for chemical processing". Moscow, 1959. 15 pp (Min Higher Educ USSR, Moscow Inst of the Petroleum-Chem and Gas Industry im I. M. Gubkin), 150 copies (KL, No 13, 1959, 105)

ZHOMOV, A.K.; PAUSHKIN, Ya.M.

Catalytic gasification of petroleum residue to gases containing olefines. Izv.vys.ucheb.zav.; neft' i gaz 1 no.11: 85-90 '58. (MIRA 12:5)

1. Moskovskiy institut neftekhimicheskoy i gazovoy promyshlennosti im. akad. I.M. Gubkina.
(Petroleum industry--By-products)

S/152/60/000/009/003/004/XX
B024/B076

AUTHORS: Zhemov A. K., Vishnyakova T. P., and Paushkin Ya. M.

TITLE: Kinetics of High-Temperature Pyrolysis of Crude Oil
to Gas With a High Olefin Content

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Neft' i gaz,
1960, No. 9, pp. 103 - 107

TEXT: The authors consider the possibility of applying
G.M. Panchenkov's theory on the kinetics of thermal cracking of
petroleum hydrocarbons to the description of the pyrolysis of crude
oil residues in the presence of steam. In cooperation with
V. S. Tret'yakova (Ref. 3) G. M. Panchenkov obtained an equation
from which the velocity constants of the first and second stages of
a continuous first-order reaction in the cracking process can be
determined:

✓

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Kinetics of High-Temperature Pyrolysis
of Crude Oil to Gas With a High Olefin
Content

S/152/60/000/009/003/004/XX
B024/B076

$$n_0 \frac{dx}{dl} = \frac{k_1 (1-x)}{v_2 x + \frac{v_5}{v_2} \left[v_3 x + \frac{v_3 (1-x)}{1-k} - v_3 \frac{(1-x)^k}{1-k} \right]}, \quad (2)$$

where x denotes the degree of conversion; l the distance from the beginning of the reaction zone; v_1, v_2, v_3, v_5 are the stoichiometric coefficients; n_0 is the number of gram-moles of the initial cracking residue; k, k_1 are the reaction constants. By means of a graphic solution of this transformed equation the authors ascertained that the equation obtained for thermal cracking is also applicable to high-temperature pyrolysis. There are 4 figures and 5 Soviet references.

Card 2/3

Kinetics of High-Temperature Pyrolysis
of Crude Oil to Gas With a High Olefin
Content

S/152/60/000/009/003/004/XX
B024/B076

ASSOCIATION: Moskovskiy institut neftekhimicheskoy i gazovoy
promyshlennosti im. akad. I. M. Gubkina
(Moscow Institute of the Petrochemical and Gas
Industry imeni Academician I. M. Gubkin)

SUBMITTED: January 29, 1961

✓

Card 3/3

ZHOMOV, A.K.; VISHNYAKOVA, T.P.; PAUSHKIN, Ya.M.

Kinetics of the high temperature pyrolysis of crude petroleum
to a gas of high olefin content. Izv. vuz. ucheb. zav.; neft'
i gaz 3 no.9:103-107 '60. (MIRA 14:4)

1. Moskovskiy institut neftekhimicheskoy i gazovoy promyshlennosti
imeni akademika I.M.Gubkina.

(Pyrolysis)

(Olefins)

(Petroleum)

PAUSHKIN, Ya.M.; ZHOMOV, A.K.; TOPCHIEV, A.V., akademik.

Cycloalkylation of isobutane and isopentane by cyclohexene, with the formation of alkyl naphthenes. Dokl. AN SSSR 90 no.6:1047-1049 Je '53.
(MLBA 6:6)

1. Akademiya nauk SSSR (for Topchiyev). (Alkylation) (Hydrocarbons)

ZHOMOV, A.K.; KHOLDYAKOV, N.I.; FEDINA, V.V.; BUTYUGIN, S.M.

Dehydrocyclization of a low-octane fraction of Korobkovka petroleum on an aluminum-chrome catalyst with reduction of the chromous oxide content. Izv. vys. ucheb. zav.; nef't' i gaz 7 no.11:51-54 '64. (MIRA 18:11)

1. Vsesoyuznyy zaochnyy politekhnicheskii institut.

Zhomov, A.K.

PHASE I BOOK EXTRACTATION

SOV/4941

Mezhnyakovskoye soveshchaniye po khimii nefli, Moscow, 1956.
Sbornik trudov Mezhnyakovskogo soveshchaniya po khimii nefli
(Collection of papers of the Inter-University Conference on Petroleum Chemistry) (Moscow) 1st-10 Mosk.
univ., 1956. 313 p. Errata slip inserted. 1,600 copies
printed.

Organizing Committee of the Conference: Chairman: B. A.
Kazanskiy, Academician; Vice-Chairman: S. I. Kuznetsov,
Docent; G. M. Panchenko, Professor; A. P. Plete, Pro-
fessor; Secretary: Ye. S. Balenkov, Scientific Worker.
Editorial Board: Resp. Ed.: A. P. Plete; I. V. Gostun-
kov, I. N. Kis-Skorobogatov, L. A. Ertmanskiy.

FUNCTION: This collection of articles is intended for the
teaching staff of universities and schools of higher edu-
cation training specialists for the petroleum and petroli-
um-refining industries.

Card 1/7

COVERAGE: The collection includes articles dealing with the
present state of the petroleum industry, the scientific
problems in petroleum chemistry, the scientific
approach to the solution of petroleum and petroleum
products, the scientific approach to solving petroleum
into motor fuels and lubricants, and the manufacture of
synthetic products from hydrocarbon gases and petroleum.
One article discusses the effect of chemical composition
and additives on fuel combustion in jet engines. The ma-
terial was presented at the Inter-University Conference
on Petroleum Chemistry, held at the Moscow State Universi-
ty from M. V. Lomonosov November 26-28, 1956. No person-
alities are mentioned. References accompany most of the
articles.

TABLE OF CONTENTS: None given

The authors and the titles of articles are as follows:

Introduction by B. A. Kazanskiy, Academician

Card 2/7

Collection of Transactions (Cont.)

SOV/4941

Kiselev, A. V., Laboratoriya adsorbtsii Moskovskogo gosudarstvennogo universiteta (Adsorption Laboratory of the Moscow State University) and Laboratoriya sorbtsionnykh protsessov Instituta fizicheskoy khimii AN SSSR (Laboratory of Sorption Processes, Institute of Physical Chemistry, AS USSR). Hydrocarbon Adsorption Energy 258

Paushkin, Ya. M., R. V. Sychev, T. P. Vishnyakova, and A. K. Zhomov, Moscow Petroleum Institute imeni I. M. Gubkin. Effect of Chemical Composition and Additives on Fuel Combustion in Jet Engines 293

AVAILABLE: Library of Congress (TP690.A1M445 1956)

Card 7/7

JA/wrc/ec
4-20-61

ACCESSION NR: AT4005960

S/2755/63/000/004/0064/0068

AUTHOR: Fedorov, G. B.; Zhomov, F. I.

TITLE: Diffusion penetration of uranium into molybdenum from a uranium-niobium-zirconium alloy

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Metallurgiya i metallovedeniye chisty*kh metallov, no. 4, 1963, 64-68

TOPIC TAGS: diffusion, uranium diffusion, uranium niobium zirconium alloy, niobium diffusion, zirconium diffusion, molybdenum diffusion, uranium diffusion coefficient, uranium molybdenum diffusion

ABSTRACT: Uranium, columbium (niobium), and zirconium ternary alloys having a γ - phase structure are of great interest and have been proposed as alloys that resist gas swelling at elevated temperatures. Specifically, a uranium alloy with 20% Cb and 5% Zr has been reported to preserve its hardness up to 900C. In the present paper, the interaction of molybdenum with a uranium alloy containing 25% Cb and 5% Zr was studied. An annealing temperature of 900-1200C was applied in a neutral atmosphere at 200-300 mm Hg over periods of time varying from tens to hundreds of hours depending on the temperature. During diffusion-annealing, a greyish-yellow skin formed at the interface of the specimens.

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ACCESSION NR: AT4005960

A radiometric analysis was made, and a graph plotted showing the variation of uranium radioactivity in diffusion layers at various depths, as shown in Figure 1 of the Enclosure. From the formation of a skin at the interface and from the saddle in the radiometric curve in Fig. 1, it was concluded that a reactive diffusion took place and a new phase developed at the interface. Furthermore, as a result of analysis of binary systems, it was assumed that the new phase was $ZrMo_2$. This assumption was further confirmed by X-ray analysis. The diffusion kinetics were explained as follows: what initially takes place is a mutual atomic diffusion of uranium, columbium, and zirconium into molybdenum and a diffusion of molybdenum into the uranium alloy. At this stage zirconium atoms are stored in molybdenum, and molybdenum atoms in the uranium alloy, while the path is free for uranium diffusion. After the formation of the intermetallic phase, a reactive diffusion sets in, and uranium begins to be expelled from this phase. Simultaneous with the growth of the intermetallic phase, the diffusion of uranium into molybdenum is accelerated. Uranium diffusion coefficients were determined by Matano's method (Matano. Japan. J. Phys., 8, 109 (1933)). However, this method is applicable only to atomic diffusion; therefore, the computed diffusion coefficients in Fig. 1 of the Enclosure are called conditional and can be used for estimating purposes only. The temperature dependence of the conditional diffusion coefficients of uranium diffusion from the uranium alloy into molybdenum is given. It was found that the activation energy for diffusion of uranium from the alloy into molybdenum is about the same as for diffusion of uranium into zirconium. However, uranium diffuses into

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ACCESSION NR: AT4005960

molybdenum at a slower rate. The obtained coefficients of diffusion are comparable to those of uranium diffusing from uranium-molybdenum alloys into zirconium. Diffusion of uranium from its alloy with zirconium and columbium into molybdenum occurs in the studied range of temperatures at a rate about 1000 times slower than the autodiffusion of uranium, but about 108 times faster than the autodiffusion of molybdenum. Test specimens were also diffusion-annealed at a temperature of 1300C for 9 hours. A partial fusion of the materials was observed at the interface. "Engineer I. D. Rastanayer took part in the work." Orig. art has: 4 figures.

ASSOCIATION: Inzhenerno-fizicheskiy institut, Moscow. (Engineering-Physics Institute).

SUBMITTED: 00

DATE ACQ: 17Jan64

ENCL: 01

SUB CODE: MM, MT

NO REF SOV: 006

OTHER: 002

Card 3/43

FEDOROV, G.B.; SMIRNOV, Ye.A.; ZHOMOV, F.I.

Diffusion and thermodynamic characteristics of nickel-chromium
alloys. Met. i metalloved. chist.met. no. 4:110-121 '63.
(MIRA 17:5)

S/755/51/000/003/005/027

AUTHORS: Fedorov, G.B., Zhomov, F.I.

TITLE: Selfdiffusion of zirconium in the β -phase of the alloy Zircalloy-2.

SOURCE: Moscow. Inzhenerno-fizicheskii institut. Metallurgiya i metallove-deniye chistykh metallov. no.3. 1961, 43-45.

TEXT: The paper reports an experimental determination of the temperature (T) coefficient of the selfdiffusion of Zr in the alloy Zircalloy-2 which affords better corrosion/mechanical properties than pure Zr. The alloy was fused from iodide Zr rods with (by weight) 1.5% Sn, 0.12% Fe, 0.05% Cr, and 0.05% Ni in an arc furnace in an atmosphere of purified Ar. Ingot uniformity was achieved by six remelts. The ingot was then hot-forged, the oxidized layer was milled off, and 9x10x18-mm specimens were cut. Radioactive Zr⁹⁵ was sprayed onto one face in a vacuum. Paired specimens were then tied together with Mo wire, wrapped in Mo foil, and placed into a quartz tube continuously evacuated through a backing pump and a diffusion pump. The diffusion anneal was performed in a tube furnace within a T range of 950-1,200°C over a period of several hours. The magnitude of the diffusion coefficient was determined by a series of integrations and differentiations (see also no.1 of the subject sbornik, 1959, 162 and 170). The results are tabulated.

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Selfdiffusion of zirconium in the β -phase ...

II/755/61/000/003/005/027

The diffusion coefficient of Zr with 1.5% Sn can be expressed by $D = 2.5 \cdot 10^{-3} \exp(37,000/RT)$, as against $D = 4 \cdot 10^{-5} \exp(26,000/RT)$ for pure Zr. It is readily seen that in Zircalloy-2 the activation energy of selfdiffusion is greater than in pure Zr and even slightly greater than in the binary Zr-Sn alloy. It is noted that, within the T interval investigated, the selfdiffusion coefficient of Zircalloy-2 decreases appreciably below that of pure Zr, but that it remains practically equal to that of the binary Zr-Sn alloy, at least within the limits of accuracy of the experiment. There are 1 figure, 1 table, and 4 Russian-language references (3 Soviet and 1 translation of "The Metallurgy of Zirconium," B. Lustman, F. Kerze, Jr., eds., McGraw-Hill, 1955. Moscow. "Foreign Lit. Publ. House, 1959).

ASSOCIATION: MIFI (Moscow Engineering Physics Institute).

CARD 3/2

L 00419-67 EWP(e)/ENT(m) WW/WH

ACC NR: AT6023739

SOURCE CODE: UR/2755/66/000/005/0099/0104

AUTHOR: Yevstyukhin, A. I. (Doctor of technical sciences); Fedorov, G. B.;
Solov'yov, G. I.; Smirnov, Ye. A.; Zhomov, F. I.; Zaluzhnyy, A. G.

ORG: none

TITLE: Study of the structural diagram of uranium carbide-tungsten alloys, and the diffusion of uranium from its monocarbide into tungsten

SOURCE: Moscow. Inzhonorno-fizicheskiy institut. Metallurgiya i metallovodoniye chistykh metallov, no. 5, 1966, 99-104

TOPIC TAGS: metal diffusion, uranium compound, tungsten metal

ABSTRACT: In the present article the structural diagram of uranium carbide-tungsten alloys was studied by determination of the temperature of the start of melting of the alloys, and by X ray and metallographic analyses. The alloys were prepared by briquetting uranium carbide and tungsten powders at a pressure of about 5×10^3 kg/cm, with subsequent sintering in a furnace with a graphite heater at 2000°C and a pressure of 1×10^{-4} mm Hg, and then melting in a Type MIFE-9-3 arc furnace. Starting materials were technical grade uranium with a purity of 99.87 wt%, and spectroscopically pure graphite in the form of rods 5 mm in diameter. A table shows the compositions of the starting alloys. The tungsten content varied from 1 to

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L 09419-67

ACC NR: AT6023739

90 wt%. The temperature of the start of melting of the alloys was determined directly with an optical pyrometer. The X ray analysis was made by the Debye method in a Type RKU-86 cylindrical chamber. A structural diagram was constructed, based on the experimental results. It was found that the melting temperature of the eutectic was $2180 \pm 20^\circ\text{C}$. The eutectic point corresponded to 10 wt% tungsten. The solubility of tungsten at the melting temperature of the eutectic was determined to be about 8 wt%. The solubility of tungsten at a temperature of 2000°C was about 4 wt%. Solubility of uranium monocarbide in tungsten was not observed. A study was made of the diffusion of uranium from its monocarbide in tungsten in the temperature interval of $1500\text{--}2100^\circ\text{C}$. The temperature dependence of the diffusion coefficients had the form

$$D = 0.11 \times \exp(-91,700/RT) \text{ cm}^2/\text{sec}.$$

In the temperature interval studied, there was no reaction between uranium carbide and tungsten. Orig. art. has: 5 figures and 2 tables.

SUB CODE: 11, 20/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 003

S/755/61/000/003/019/027

AUTHORS: Fedorov, G. B., Zhomov, F. I.

TITLE: Diffusion of uranium in zirconium from uranium-molybdenum alloys.

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Metallurgiya i metallovedeniye chistykh metallov. no.3. 1961, 196-195.

TEXT: The paper surveys briefly the existing bibliography on the diffusion of U in Zr (Schwope, A., Jackson, Z., Report MI-T-24, June 1950) and on the effect of neutron radiation on the properties of alloys of U with 1-13.5% Mo (Konobeyevskiy, B. M., et al., in Trans. Internat'l Conf. on peaceful uses of atomic energy, Geneva, 1955, Izd-vo AN SSSR, 1955; Trans. 2d Internat'l Conf. etc., Geneva, 1958, v.3, Atomizdat 1959; Atomnaya energiya, v.4, no.1, 1958, 34; ibid., no.2, 1956, 63; ibid., v.9, no.3, 1960, 194; Bleiberg, M., et al., J. Appl. Phys., v.27, no.1, 1956, 1270), and describes new experimentation on the diffusion of U in iodide Zr with small Hf content (<0.04%) from alloys with 3 and 9% Mo. Prior to diffusion anneal platelets of the U alloys were wedged firmly into the Zr specimens. The diffusion pairs thus obtained were wrapped in Mo foil and placed in evacuated quartz ampoules. Diffusion anneal was performed in tubular furnaces at 900-1,050°C ($\pm 5^\circ$) for up to 160 hrs. After anneal the Zr specimens were cut along the slot. Then, beginning at the contact surface, thin layers were successively removed, whereupon the integral

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Diffusion of uranium in zirconium from ...

S/755/61/000/003/019/027

α -activity of the remainder of the specimen is measured on the scintillation counter. Since the counter records the α -radiation of a very thin surficial layer only, the integral activity of the specimen can be regarded as proportional to the specific radioactivity or the concentration of the U at the depth of the layer previously removed. The source is assumed to be constant. Assuming the variation of the source concentration with depth to be known, an error-function equation (provided) is used to determine the diffusion coefficients (DC) of the U at various depths. It was established that for the initial portions of the concentration curve the DC are practically independent of depth and, hence, of concentration. The values of the DC of U from the two U-Mo alloys tested are tabulated and their T dependence is graphed. The activation-energy values and the pre-exponent factors are also tabulated. The Schwope-Jackson data are also shown for comparison. It is readily seen that the presence of Mo impairs the diffusion of U atoms in Zr, reduces the DC and increases the diffusional activation energy. The present test results suggest that, since the U diffusion is accompanied by Mo diffusion in the Zr, the Mo-produced hardening of the Zr may impair the U diffusion. There are 1 figure, 2 tables, and 11 references (8 Russian-language Soviet, 1 Russian translation of a presumably English-language original, and 2 English-language U.S.).

ASSOCIATION: MIFI (Moscow Engineering Physics Institute).

Card 2/2

FEDOROV, G.B.; ZHOMOV, F.I.

Diffusion of uranium into zirconium out of uranium-molybdenum
alloys. Met. i metalloved. chist. met. no.3:193-195 '61.
(MIRA 15:6)

(Uranium-molybdenum alloys--Metallography)
(Zirconium--Metallography) (Diffusion)

ACCESSION NR: AT4005963

B/2755/63/000/004/0110/0121

AUTHOR: Fedorov, G. B.; Smirnov, Ya. A.; Zhomov, F. I.

TITLE: Diffusion and thermodynamic properties of nickel-chromium alloys

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Metallurgiya i metallovedeniye chisty*kh metallov, no. 4, 1963, 110-121

TOPIC TAGS: nickel chromium alloy, nickel diffusion, chromium diffusion, thermodynamic property, nickel vapor pressure, chromium vapor pressure, activation energy, thermodynamic factor, tagged atom method

ABSTRACT: In a continuation of earlier work, radioactive Cr⁵¹ and Ni⁶³ were employed in an investigation of the diffusion characteristics and thermodynamic properties of binary nickel-chromium alloys with 4.9 - 19.7 wt. % Cr. For temperatures up to 950-1150C, the authors report an increase in the activation energy of diffusion of chromium with a decrease in that of nickel, along with a decrease in the diffusion coefficients of chromium and an increase in the diffusion coefficients of nickel, due to admittance of Cr. The thermodynamic properties of nickel in the Ni-Cr alloys were studied by vapor pressure

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ACCESSION NR: AT4005963

determinations in a modification of Knudsen's radioactive method; there was, however, an abnormality in the isothermic curves: at 1200 and 1300C the vapor pressure of nickel above alloys with Cr concentrations up to 30 at. % was found to be higher than that of pure nickel. This anomaly could be explained by the kinetics of evaporation. For Ni-Cr alloys at 750C, the coefficient of heterodiffusion decreases as the at. % chromium increases, and the activation energy of heterodiffusion passes through a maximum at a Cr concentration of 24 at. %. "Engineers V. N. Zagryazkin and I. P. Kursevich took part in the work." Orig. art. has: 3 tables and 11 graphs.

ASSOCIATION: Inzhenerno-fizicheskiy institut, Moscow (Institute of Engineering Physics)

SUBMITTED: 00

DATE ACQ: 17Jan64

ENCL: 00

SUB CODE: MM

NO REF SOV: 008

OTHER: 005

Cord 2/2

FEDOROV, G.B.; ZHOMOV, F.I.

Self diffusion of zirconium in the β -phase of the zircaloy 2
alloy. Met. i metalloved. chist. met. no.3:43-45 '61.

(MIRA 15:6)

(Zirconium alloys--Thermal properties) (Diffusion)

FEDOROV, G.B.; ZHOMON, E.I.

Zirconium and tin diffusion in stannous alloys of α -zirconium.
Met. i metalloved. chint. met. no. 1:162-169 '59.

(MIRA 12:10)

(Zirconium-tin alloys) (Diffusion)

FEDOROV, G.B.; BABIKOVA, Yu.F.; GRUZIN, P.I.; ZHOMOV, F.I.; RYABOVA, G.G.

Radioactive-tracer techniques in the study of the mobility, interatomic interaction, and distribution of elements in zirconium and its alloys. Izv.vys.ucheb.zav.;khim. i khim.tekh. 3 no.3: 395-401 '60. (MIRA 14:9)

1. Moskovskiy inzhenerno-fizicheskiy institut, kafedra metallurgii i metallovedeniya. (Zirconium alloys) (Radioactive tracers)

S/137/62/000/008/021/065
A006/A101

AUTHORS: Fedorov, G. B., Zhomov, F. I.

TITLE: Self-diffusion of zirconium in the β -phase of "zircalloy-2"

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 8, 1962, 10, abstract 8I62
(In collection: "Metallurgiya i metalloved. chist. metallov", no. 3, Moscow, Gosatomizdat, 1961, 43 - 45)

TEXT: The alloy was smelted in an arc furnace in purified argon atmosphere from Zr iodide containing (in weight %): Pb 1.5, Fe 0.12, Cr 0.05 and Ni 0.05. On specimens (9 x 10 x 18 mm) Zr^{95} radioactive isotope was applied by spraying in a vacuum. Diffusion annealing was performed in a vacuum at 950 - 1,200°C. Diffusion coefficient D was determined by laminar integral radiometric analysis. At 950, 1,030, 1,120 and 1,200°C, D values were calculated, respectively equal to $0.6 \cdot 10^{-9}$, $1.7 \cdot 10^{-9}$, $4 \cdot 10^{-9}$ and $8.4 \cdot 10^{-9}$ cm²/sec. The pre-exponential factor and activation energy of Zr self-diffusion in zircalloy-2 are respectively equal to $6 \cdot 10^{-3}$ cm²/sec and 40,000 cal/g-atom. Conclusions are drawn that an increase in activation energy of Zr self-diffusion in zircalloy-2 as compared with pure Zr, ✓

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Self-diffusion of zirconium...

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indicates an increased strength of interatomic bond in alloying with Zr. D is lower in the investigated temperature range in zircalloy-2 than in pure Zr. Diffusion characteristics of zircalloy-2 do almost not differ from corresponding characteristics of Zr alloy with 1.5% Sn.

V. S.

[Abstracter's note: Complete translation]

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S/137/62/000/008/020/065
A006/A101

AUTHORS: Fedorov, G. B., Zhomov, F. I.

TITLE: Uranium diffusion into zirconium from uranium-molybdenum alloys

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 8, 1962, 9 - 10, abstract 8161 (In collection: "Metallurgiya i metalloved. chist. metallov", no. 3, Moscow, Gosatomizdat, 1961, 193 - 195)

TEXT: The authors studied U diffusion in Zr iodide from U-Mo alloys containing 3 and 9% Mo. Diffusion pairs are obtained by wedging U-Mo alloy plates into Zr-specimens. The specimens were annealed in evacuated quartz ampoules at 900 - 1,050°C for 160 hours. Then thin layers were taken off the contact surface and the integrated α -activity of the remaining specimen portion was measured. At 950, 1,000, 1,055°C diffusion coefficients of YM-3 (UM-3) alloys were calculated and found to be equal to $4 \cdot 10^{-12}$, $1.8 \cdot 10^{-11}$, $9 \cdot 10^{-11}$ cm²/sec, respectively. At 900, 950, 1,000 and 1,055°C the diffusion coefficients of YM-9 (UM-9) alloys are equal to $5.6 \cdot 10^{-12}$, $1.5 \cdot 10^{-11}$, $5.8 \cdot 10^{-11}$ and $2.5 \cdot 10^{-10}$, respectively. The pre-exponential factors for U, UM-3 and UM-9 are 0.46; $5.7 \cdot 10^2$ and $2.8 \cdot 10^5$ ✓

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Uranium diffusion into...

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A006/A101

cm²/sec respectively; the activation energies determined are equal to 47,300, 76,000 and 95,000 cal/g-atom respectively. The conclusion is drawn that the effect of inhibited U diffusion in Zr can manifest itself in the hardening of U during its alloying with Mo rather than as a result of alloying Zr with another element. There are 11 references.

V. Srednogorska

[Abstracter's note: Complete translation]

✓

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L 09510-67 EWT(m)/EWP(t)/ETI IJP(c) JD
ACC NR: AT6023738 (A,N) SOURCE CODE: UR/2755/66/000/005/0092/0098

AUTHOR: Fedorov, G. B.; Smirnov, Ye. A.; Zhomov, F. I.

ORG: none

TITLE: Autodiffusion in alpha uranium

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Metallurgiya i metallovedeniya
chistyykh metallov, no. 5, 1966, 92-98

TOPIC TAGS: metal diffusion, uranium

ABSTRACT: Polycrystalline samples of electrolytic uranium with a purity of 99.87% were used in the tests. The samples were in the form of cylinders 10-12 mm in diameter and 6-8 mm high. Before the diffusion study, the samples were placed in evacuated and sealed quartz ampoules, and were subjected to water quenching from 800°C and stabilizing annealing for 4 hours at 630°C. Radioactive uranium, enriched up to 90% in the U^{235} isotope, was used as an indicator in the diffusion tests. A rod of enriched uranium was suspended in a tungsten heater and was sprayed in a vacuum onto the end surfaces of the samples, which had been specially prepared by polishing. The samples were then placed in quartz ampoules which were evacuated to a pressure of 10^{-5} mm Hg and sealed. Diffusion annealing was carried out at temperatures of 630, 590, 550, and 500°C for 434, 1455, 1827, and 1835 hours, respectively. After the

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ACC NR: AT6023738

diffusion annealing, the samples were subjected to a layer-wise radiographic analysis. The depth of penetration of the active material into the samples was found to be only 10-20 microns. On the basis of the experimental data, calculations were made of the coefficients of autodiffusion for alpha uranium. A curve shows the dependence of these coefficients on temperature. Overall conclusions were as follows: 1) at the temperatures at which the alpha phase of uranium exists, autodiffusion proceeds predominantly along the intergrain boundaries; 2) measurements were made of the coefficients of boundary and volumetric autodiffusion of uranium in the alpha phase. It was established that the level of diffusion mobility along the grain boundaries is considerably (by 4-5 orders of magnitude) greater than volumetric diffusion. The temperature dependences of the autodiffusion coefficients have the following form:

$$D_{\text{vol}} = 4.5 \times 10^{-4} \exp(-42,200/RT) \text{ cm}^2/\text{sec.}$$

$$D_{\text{bound}} = 1.6 \times 10^5 \exp(-44,300/RT) \text{ cm}^2/\text{sec.}$$

Orig. art. has: 4 figures and 2 tables.

SUB CODE: 11, 20/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 004

Card 2/2 LC

LOMOVA, M.; KOZAKEVICH, M.; ZHOITOVSKIY, P.

Exploratory ethnographic trip to the Ukrainian Polesye. Sov. etn. no. 4:
127-132 '53. (MLRA 6:12)

(Polesye--Ethnology) (Ethnology--Polesye)

MITKEVICH, V. (UW3DR); PODLIPNOV, Ye. (UA414537) (poselok Volzhskiy, Kuybyshevskaya obl.); ZHOMOV, Yu. (UA3FG); KROTOV, A.

Short waves. Radio no.2:10-11 F '64.

(MIRA 17:3)

ZHOMOV, Yu. (UA3FG)

Calling all "U"! Radio no.6:13 Je '61.
(Amateur radio stations)

(MIRA 14:10)

ZHOMOV, Yu. (UA3FG)

SSB exciter for amateur bands. Radio no. 10:35-39 0 '61.
(MIRA 14:10)

(Radio, Shortwave)

KROTOV, A. (UA3HF); ZHOMOV, Yu. (UA3FG); PROZOROVSKIY, Yu. (UA3AW)

Radio shortwaves, Radio no.7:16 '64.

(MIRA 18:1)

ZHOMOV, Yu. (UA3FG); DENISOV, N. (UA3XN)

Short and ultrashort radio waves. Radio no.1:17 Ja '65. (MIRA 18:4)